



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2005SD29B

Title: The Influence of Manure Placement on Crop Yields and the Transport and Fate of Nutrient and Antibiotics

Project Type: Research

Focus Categories: Agriculture, Water Quality

Keywords: Manure, Nutrients, Antibiotics

Start Date: 03/01/2005

End Date: 02/28/2006

Federal Funds Requested: \$10,000

Non-Federal Matching Funds Requested: \$20,662

Congressional District: First

Principal Investigators:

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Abstract

Tylosin and chlortetracycline are antibacterial chemicals used in livestock production. Tylosin is highly water soluble, only partially sorbed to manure, and excreted unchanged by animals that receive it in their feed. Chlortetracycline has been found in swine waste lagoons. Both chemicals are potentially mobile, but the fate after application to agricultural fields is unknown. The objectives of this project are: (1) determine the concentration and mass transport in runoff of tylosin and chlortetracycline in manure applications that are landspread or landspread with incorporation, (2) determine the amount of nutrients (N and P) in runoff from both treatments, and (3) determine the effect of landscape position on infiltration rate and runoff potential of these chemicals of interest in both application treatments. A small sprinkler infiltrometer will be used to measure infiltration rate at three landscape positions in a field. Runoff will be collected and antibacterial concentrations will be measured using LC/MS techniques and N and P will be measured by colometric absorbance using a Astoria 200 series analyzer.